What Is Claimed Is:

1. A fuel-injection system (1) comprising a fuel injector (2) having a plurality of spray-discharge orifices (13), which injects fuel into a combustion chamber (6) of an internal combustion engine; and an ignition device (8) projecting into the combustion chamber (6), the ignition device (8) having at least one first pole (16) and one second pole (17), the fuel jets (20) emerging from the spray-discharge orifices (13) spreading a fuel fan (11) that essentially has the form of a cone or partial cone below the region of the ignition device (8),
wherein the end of the at least one first pole (16) is arranged to the side adjacent to the end of the second pole (17), and both ends are located on approximately the same level of the longitudinal axis of the ignition device (8).

2. The fuel-injection system as recited in Claim 1,
wherein the ends of the first pole (16) and the second pole (17) are at least partially made of a noble metal, in particular a platinum alloy.

3. The fuel-injection system as recited in Claim 1 or 2,
wherein the diameter of the end of the first pole (16) and the second pole (17) is less than one millimeter.

4. The fuel-injection system as recited in one of the preceding claims,
wherein the distance between the end of the first pole (16) and the end of the second pole (17) is less than one millimeter.

5. The fuel-injection system as recited in one of the preceding claims,
wherein the distance between the second pole (17) and the cone envelope (18) formed by the fuel jets (20) amounts to between 0.5 mm and 3 mm.

6. The fuel-injection system as recited in one of the preceding claims,
wherein the fuel jets (20) evenly spread the fuel fan (11), the fuel jets (20) having uniform opening angles (β), in particular with respect to each other.

7. The fuel-injection system as recited in Claim 6,
wherein the opening angle (β) is between 25 degrees and 45 degrees.

8. The fuel-injection system as recited in one of the preceding claims, wherein the spray-discharge orifices (13) widen in a stepped manner in the direction of the combustion chamber (6).

9. The fuel-injection system as recited in one of the preceding claims, wherein the number of spray-discharge orifices (13) is at least 4 and at most 12.

10. The fuel-injection system as recited in one of the preceding claims, wherein the spray-discharge orifices (13) are arranged in a multi-hole disk of the fuel injector (2).

11. The fuel-injection system as recited in one of the preceding claims, wherein the fuel fan (11) has an envelope opening angle (α) of 70 degrees to 110 degrees.

12. The fuel-injection system as recited in one of the preceding claims, wherein the fuel fan (11) extends coaxially with respect to the longitudinal axis of the fuel injector (2).

13. The fuel-injection system as recited in one of Claims 1 through 11, wherein the longitudinal axis of the fuel fan (11) encloses an angle other than zero with respect to the longitudinal axis of the fuel injector (2).

Summary

A fuel-injection system (1) comprising a fuel injector (2), having a plurality of spray-discharge orifices (13), which meters fuel into a combustion chamber (6) of an internal combustion engine, has an ignition device (8), which projects into the combustion chamber (6), this ignition device (8) having at least one first pole (16) and one second pole (17). The fuel jets (20) emerging from the spray-discharge orifices (13) spread an essentially cone-shaped fuel fan (11) below the region of the ignition device (8). The end of the at least one first pole (16) is arranged to the side adjacent to the end of the second pole (17) projecting into the combustion chamber (6), and both ends are located on approximately the same level of the longitudinal axis of the ignition device (8).

(Figure 4)